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Hackers target home broadband routers

Online criminals take control of users' internet connections to steal usernames and passwords

Internet criminals are targeting home broadband routers in an attempt to control users' internet connections. A recent attack in Mexico proved that attackers can change settings in certain routers, redirecting users to malicious sites to steal their online banking details and other personal information. The effect of the new attack is that, when a victim attempts to visit a site such as a bank, he is instead sent to an identical-looking site that is under the control of the criminal.

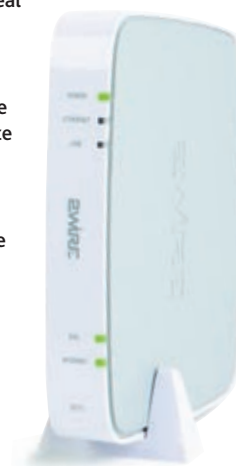
When users enter their username, password and any other authentication information, those details are sent to the fake site instead of the legitimate one. The criminal can collect these details to use himself or to sell to other criminals.

Security company Symantec, which predicted this type of attack in early 2007, has discovered a recent real-life situation where Mexican users were targeted. As a result, attempts to access one of the largest banks in Mexico were redirected to a fake site.

This type of attack is most significant because it potentially affects all the PCs, internet-connected games consoles and other web-aware devices using the router that has been compromised.

You might have the best anti-virus software and strongest desktop firewall product installed on the PC you use for banking but, if the unprotected games PC (used and abused by the kids) is the one to activate the malware, your secure computer will still end up at the fake site. This is because it most likely relies on the router to handle DNS, the system that maps domain names (such as www.yourbank.com) to IP addresses (such as 123.123.123.123). And the router is now loaded with the wrong settings.

Thomas Parsons, from Symantec Security Response, said that the attack had a low work-to-reward ratio. "In the past they had to compromise particular PCs but, with a compromised router, all of the PCs are compromised automatically," he said.



▲ Attackers have targeted broadband routers

How does the attack actually work?

The first stage in the Mexican attack was that potential victims received spam emails containing a web link. Clicking on this link opened a page containing malicious code. The key here is that victims need to run malicious code on their systems for the attack to succeed. Avoiding seedier sites and ignoring spam are useful ways to reduce the risk.

After the code runs, it attempts to compromise the router. There are a number of ways in which it can do this, including brute-forcing the administrator password or using a list of the manufacturer's default values.

In the Mexican case, neither of these methods was necessary due to a design flaw in the 2Wire router that was targeted. A cross-site request forgery

vulnerability allowed the malware to send a Uniform Resource Identifier (URI) to the router in order to crack it. This technique can be used to set a password, add names to the DNS, disable wireless authentication and set dynamic DNS – and it doesn't need to use a password to gain access to these settings.

REDUCING THE RISKS

It would be sensible to add an admin password or change the password from the manufacturer's default to something harder to guess. However, in the case of 2Wire owners, updating to the latest firmware would be more important.

Another thing to watch out for are incorrect details for important sites' security certificates. You would expect a responsible bank to encrypt the connection as you log in, and this requires a valid SSL certificate. Most modern web browsers make it easy to examine the certificate's details.

Configuring every PC's networking settings manually, rather than using the automatic DHCP system provided by most routers, could also help. By adding your ISP's DNS addresses to each PC, rather than relying on the router, you would avoid being redirected by false DNS records on that router.

Vendor	Model	Username
2Wire	2800M	admin
2Wire	2800M	root
2Wire	2800M	admin
2Wire	2800M	root
2Wire	2800M	admin
2Wire	2800M	root
2Wire	2800M	admin
2Wire	2800M	root
2Wire	2800M	admin
2Wire	2800M	root

▲ Lots of default passwords are available on the web

CONTACTS

To contact the *Computer Shopper* newsdesk, please send an email to news@computershopper.co.uk.

You can also write to us at:

News
Computer Shopper
30 Cleveland Street
London
W1T 4JD

For daily news, please visit
www.computershopper.co.uk



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'Broaderband' boost for Britain

The first 100Mbit/s fibre-optic connections will be up and running in one lucky town later this year – and it's all thanks to the country's sewer systems

Britain's 'broaderband' future finally received a shot in the arm with the announcement that the UK's first fibre town will be connected this autumn. Networking specialist H2O Networks says it could bring speeds of 100Mbit/s to every home in the chosen town by this autumn. Residents of Bournemouth, Northampton and Dundee are waiting to find out which one will get the super-fast services.

"By running cables through the sewers, we can roll out fibre much more quickly and cheaply than traditional cable companies," Elfed Thomas, managing director of H2O, told *Shopper*. "The problem of providing fast broadband has always been local infrastructure, and the sewers run to nearly every household in the country."

"At the moment we have a high-speed intercity infrastructure that crawls to a snail's pace when you turn off the fibre motorways."

The current average broadband speed is less than 5Mbit/s. BT and Virgin Media are both trialling faster broadband services, with Virgin Media upgrading its own cable network to carry 50Mbit/s by next year. However, most Britons still rely on BT's creaky copper network.

The UK broadband market has been crying out for an upgrade to replace the copper cabling, but so far no-one has been willing to make the investment necessary to carry fibre to the home. BT has emphasised it is not prepared to invest the £15 to £20 million required to replace its copper with fibre-optic cables.

The news of H2O's move was welcomed by Ofcom and the government, which is concerned that the UK is not embracing next-generation broadband and could miss out on high-bandwidth application such as IP television, high-definition films and home surveillance systems.

While these nascent services are encouraging, experts believe the first dribbles of high-speed fibre are a drop in the ocean. "This is a good idea and has to be good news, but really we are talking about just one town," said Ian Fogg, broadband analyst with Jupiter Research. "They



▲ Laying fibre-optic cables can be dirty work, but somebody's got to do it

will have to work hard and get at least one in five households to sign up before they can cover their costs and there is plenty of competition.

"And this is to a town – the business case for rural areas is very sketchy."

Yet the government has told BT that it will not be forced to invest in rolling out fibre-optic infrastructure to existing homes. "It is not for government to tell business how much and where to invest in next-generation broadband," said the Department for Business. "However, it is right that we discuss with industry, and with the regulator, how the right environment can be created that will persuade them that such investments are timely and efficient."

The government has also expressed concerns that Britain could get left behind in the broadband race in Europe. The figures make worrying reading for consumers and businesses

alike. Comparing speeds is a difficult process, complicated by how data is treated and what the researchers want to show. While Ofcom says that Britain's average broadband connection delivers 4.6Mbit/s, figures from the International Telecommunications Innovation Foundation suggest we average just 2.6Mbit/s.

Finns enjoy speeds eight times faster at 21.6Mbit/s, while Sweden and France, where fibre networks are well advanced, clock 18.2Mbit/s and 17.6Mbit/s respectively. To put the UK's position in perspective, we rank behind such high-tech heavyweights as Poland, Hungary and Slovakia.

According to Communication Workers of America statistics from last year, we are light years away from Japan's 61Mbit/s, but we're beating the US, where a sprawling infrastructure provides an average of just 1.9Mbit/s.

Lenovo hones in on home users

Lenovo has unveiled a new range of consumer laptops under the IdeaPad brand, and has confirmed that it hopes to ship products to the UK later this year.

The Chinese company, best known for taking over the respected ThinkPad range of business laptops from IBM, says the positive response since the launch at CES means the range should arrive in the UK this summer.

Top of the pops at CES was the U110 (see right), which is a slick-looking ultra-portable that weighs

just over 1kg and comes with either a hard disk or solid state storage, as well as a webcam with face-recognition security.

The U110 took plaudits for its looks, but the range also includes the Y510, which is targeted at families and for home entertainment, while the beefier Y710 is Lenovo's attempt to crack the gamer market. This will be equipped with ATI Mobility Radeon HD2600 graphics, up to 4GB of RAM and a 500GB hard disk.

► The sleek U110 wowed at CES



Missing links for Britain's Google generation

The Google generation was supposed to be more clued up, better informed, natively networked and able to set the video, but somewhere along the line Britain's youngsters are missing valuable lessons on how to process information.

That's the worrying conclusion of an influential British Library study into the way children born in the internet age use computers as a learning resource.

Although the report's authors praised the widespread use of technology by youngsters and the ease with which they perform simple browsing tasks, it questioned whether they were equipped to deal with the mountain of information on the web.

"Digital literacies and information literacies do not go hand in hand," the report says. "A careful look at the literature over the past 25 years finds no improvement (or deterioration) in young people's information skills."

In some cases, the addictive nature of hunting down nuggets of information actually stopped students from accumulating knowledge because they were constantly looking for the next factoid, rather than taking time to pause and study what they had already found.

"The information literacy of young people has not improved with the widening access to technology; in fact, their apparent facility with computers disguises some worrying problems," the report says. "Internet research shows that the speed of young people's web searching means

that little time is spent in evaluating information, either for relevance, accuracy or authority."

Hence the much-reported case of Wikipedia entries being cut and pasted into essays.

Worryingly for the UK's future tech experts, children have a working knowledge of operating systems, browsing and word processing, but more specialist software is often ignored.

"Virtually 100 per cent of students use word processors and utilise the internet for coursework. But the impression of broad competence slips when percentages are revealed for other applications, such as those for presentation development (65 per cent), spreadsheets (63 per cent), graphics (49 per cent) or creating webpages (25 per cent)."



▲ Children are fluent with computers, but academics question how much they benefit from them

New threat gives voice to phishing attacks

Internet surfers are being warned to be vigilant about a new form of phishing attack that tricks end users into divulging personal information such as bank details over the phone.

According to the FBI's Internet Crime Complaint Center, 'vishing' is growing at an "alarming rate" and catching many people unaware as they assume that, because they are not being asked to provide information online, their details are safe. This is not so.

The attacks come in the form of an email, text message or phone call purportedly coming from the victim's bank or card company. The recipient is told that their card has been

suspended, deactivated or terminated for security reasons. They are instructed to call a phone number and re-activate the card and, when they make the call, they are asked for the card number.

The scam is all the more believable because the criminals answer the phone as if they are representing the bank. Most cases have so far been reported in the US, but experts believe the trend will almost certainly hop the Atlantic.

Some of the 'vishing' emails enhance their air of authenticity

by warning recipients not to provide their personal information via email. According to the FBI's Internet Crime Complaint Center (IC3), "some fraudulent emails claim the bank would never contact customers to obtain their personally identifiable information by any means, including email, mail and instant messaging."

"These emails warn recipients not to provide sensitive information when requested in an email and not to click on embedded links, claiming they could contain 'malicious software aimed at capturing login credentials'."



Timeline 15 years of internet scams

Nigerian letter

The fabled 419 fraud promised riches to anyone who would advance the perpetrator a small amount of money in order to access or release the promised pot of gold. It originated in Nigeria in the 1980s as a fax and phone scam and graduated to the web in the 1990s.

Phishing

The art of extracting valuable passwords started long before internet banking. Hackers tricked AOL subscribers into giving out password details in order to use their accounts to send spam. The first financial target was an e-payment system in 2001.

Second-chance scam

Losing bidders on eBay were contacted by con artists pretending to be the seller and told that the auction winner had pulled out. Based on their bidding history, victims had a second chance to secure goods, which never turned up. The scam cost Britons millions.

Rogue diallers

Scammers targeted dial-up users by changing the number that computers called to access the web to a premium rate number. £1,000 phone bills were not uncommon and by 2004 the phone regulator ICSTIS had received 45,000 complaints from victims

Pharming

Hackers change either the host file on a victim's computer or DNS servers so that the signposts of the internet are jumbled. Victims type in one address, such as their bank's website, and end up on an identical-looking page where their details are harvested.

1990s

1996

2004

2004

2005



EU law-makers threaten Google ads

The web could change forever if the EU decides that IP addresses constitute private information and should be included in data protection laws.

Brussels bureaucrats are locked in a dispute with big internet companies such as Google and Yahoo!, which track online behaviour so that they can sell the resulting data to online advertising companies.

Every computer connected to the internet has an IP address but, if the search engines can't use the 32-bit string of numbers that makes up each address, web entrepreneurs would be unable to continue with the targeted advertisements that enable most websites to provide content free of charge.

The EU believes that collecting IP address data could be illegal, depending on how it is used. It could force internet companies to protect records of IP addresses that identify computers on the web.

"Community law on data protection does apply on the internet," said European Data Protection supervisor Peter Hustinx, who wants to see privacy laws applied to IP addresses. "Existing rules do apply and do provide safeguards."

At the heart of the argument is whether an IP address really identifies you, rather than simply identifying the computer with which you browse the web. Google maintains that it does not collect enough information to identify the person behind the address.

"We believe that whether or not an IP address can be considered personal data depends on the context," said Google's global privacy counsel Peter Fleischer. "If you're an ISP and you attribute an IP address to your subscribers and know their name and address, the IP address should be considered personal data. On the other hand, the IP addresses recorded by every website on the planet should not be considered personal data."

"Google believes that data protection laws should apply to any data that could identify you, and, in most cases, an IP address cannot."

However, Google's position was ridiculed by Mark Rotenburg, chief executive of the Electronic Privacy Information Centre. He said, "I wish this was the case, but we are moving towards the IP6 model, for which it will be even more the case that IP addresses will be personally identifiable."

Solar power to burn GPS

Violent solar flare-ups could play havoc with electronics that rely on GPS satellite information, according to the US National Oceanic and Atmospheric Administration.

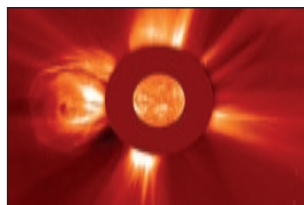
Electronics in devices ranging from satellite navigation systems, military weaponry and even ATM transactions rely on accurate GPS signals, and scientists say huge sun flares could distort the signals.

The appearance of a sunspot in January heralded the start of a new 11-year cycle of radical solar activity. "This sunspot is like the first robin of spring," said solar physicist Douglas Biesecker of NOAA's Space Weather Prediction Center. "It's an early omen of solar storms that will gradually increase over the next few years."

The turbulent cycle, called Solar Cycle 24, is expected to build gradually, with the number of sunspots and solar storms reaching a maximum by 2011 or 2012, though devastating storms can occur at any time.

Scientists said storms can knock out commercial communications satellites and swamp GPS signals. Routine activities such as talking on a mobile or getting money from a cash machine could suddenly halt over a large part of the globe.

"Our growing dependence on highly sophisticated, space-based technologies means we are far more vulnerable to space weather today than in the past," said vice admiral Conrad C Lautenbacher, Jr, under secretary of commerce for



▲ Our turbulent star could herald flaky communications

oceans and atmosphere and NOAA administrator.

In the UK we are less vulnerable than more northerly climes. "The Earth's magnetic field protects us to a certain extent," said Professor Tom Marsh of the University of Warwick. "You're more vulnerable the closer you are to a magnetic pole. They once had a shutdown of the whole power grid in part of Canada, because Canada is quite close to the magnetic north pole."

Mobile phones to get Wii-like control

Computer vision company GestureTek has announced plans to bring its Wii-like motion control to mobile phones in the UK. Unlike Nintendo's technology, which uses an accelerometer to detect motion, GestureTek's EyeMobile is software that uses your phone's existing camera to monitor its relative position.

The background environment is monitored, and any movement by the phone can be translated into movement on the screen. This means no special hardware is required, making for cheaper handsets.

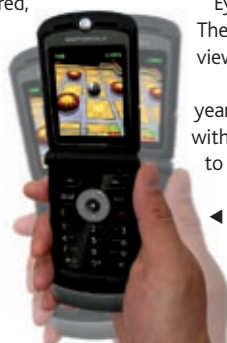
"There's no advantage to using dedicated hardware, and accelerometers just add cost," said Francis MacDougall, CTO and co-founder of GestureTek. "Our

software will run on any current handset and doesn't add to the price of the phone."

EyeMobile has already been launched in Japan, where it's popular with gamers. *Computer Shopper* tried a demonstration handset at CES in Las Vegas, and was impressed by the smoothness of the control.

EyeMobile can also detect shakes and flicks. These gestures could be used to control picture-viewing applications or web browsing.

EyeMobile should arrive in the UK later this year and can be integrated into existing handsets with a simple software installation. It doesn't need to be preinstalled by your mobile operator.



◀ Ringing the changes with a handset controller

IN BRIEF

LETTERS IN A TWIST

Facebook fans could soon lose one of the most popular games on the social network after the makers of Scrabble asked the site to pull the addictive Scrabulous from its servers.

Hasbro and Mattel, which own the Scrabble brand, have taken offence at the similarities between the miniature online word game and the grown-up board game.

CHILD'S PLAY

Youngsters dreaming of a career in the games industry could get a foot on the ladder thanks to a social networking site aimed at teaching underprivileged children industry skills.

MyG-Life plans to teach children how to design and build games online and give them the chance to collaborate with other wannabe producers.

SNOOPING SOFTWARE COMPANY INVESTIGATED

Anti-piracy company Logistep is facing an investigation in Switzerland amid claims that its snooping software breaks the country's telecoms laws.

Logistep, which monitors web traffic and reports suspected file-sharers to copyright holders and law firms globally, is alleged to have breached strict privacy. The EU is mulling similar laws (see left).

BLUETOOTH BATTLE

Wireless network technology Bluetooth could finally find a useful vocation if trials for smart prosthetics come to fruition. A US soldier who lost both his legs in Iraq has been fitted with false limbs that use Bluetooth to send signals between computer chips and motors in the joints. The technology coordinates the actions of both legs to improve fluidity.

SNAPPERS HAPPY

Polaroid, the company that pioneered snap-and-show cameras, is back to its old tricks with a portable printer designed to run off copies of pictures from mobile phones and digital cameras. About the size of a deck of cards and with USB and Bluetooth connectivity, the as-yet unnamed device uses thermal printing to knock out 2x3in colour photos.

IN BRIEF

PRICE BUSTERS

Insurance price comparison sites face censure after the Financial Services Authority launched an investigation into the money-saving ventures.

The City watchdog says it is concerned that companies such as moneysupermarket.com offer advice, which means they should be regulated. The move follows a report that most consumers don't understand the difference between policies and make decisions on price alone.

CHIP BOOST FOR POCKET POWER

Qualcomm hopes to breathe fresh life into the long-awaited Ultra Mobile PC platform with the unveiling of a pocketable prototype based on a new chip.

The device uses a 7210 chip, a slide-out keyboard, global positioning and connectivity through both WiFi and mobile phone networks using HSDPA.

SLINGBOX GOES HD

Sling Media has launched an updated version of its Slingbox TV relaying device to support high-definition television.

The Slingbox Pro HD will stream content from an HD source to PCs or laptops around the home. Sling says owners will be able to tap into their home TV from any hotel room in the world, providing they have a broadband connection of 1.5-2Mbit/s or faster.

BLACKBERRY AIMS FOR STREET CRED

BlackBerry is trying to ditch its business-only image with a new range of phones aimed at the girl or boy about town.

The pink BlackBerry Pearl, for example, looks less corporate, and is packed with multimedia toys such as video and music players and Facebook social networking software.

GOOGLE CRACKDOWN

Web entrepreneurs who tie up millions of domain names in an attempt to profit from desirable URLs are to get the elbow from Google's AdSense advertising programme. The company plans to stop profiteers from repeatedly registering names under a five-day trial period to profit from online advertising – a move that could mean that fewer consumers end up at spam webpages.

New superbugs prove hard to squash

A mystery winter virus has security experts scratching their heads as it spreads through the web with impunity, targeting family-friendly ecommerce sites.

Throughout January the elusive virus was infecting Apache servers running under Linux. These then passed the bug to anyone who visits the site.

According to security experts, the malware was affecting more than 10,000 servers by the end of the month. After it infects a server, the virus then searches for vulnerabilities on visitors' computers and installs the Rbot Trojan, or one of its variants. Many anti-virus programs still fail to detect this family of Trojans.

"This is the first time we've seen something go on this long," said Spencer Parker, director of product management for security firm Scansafe. "It's designed to evade malware researchers. People have got completely clean but are infected again within minutes."

The clean-up operation is hampered by the fact that the malicious JavaScript is spontaneously created and given a random name only once a website visitor clicks on an infected page.

"It's changing all the time, so a simple web search won't find all the cases," said Parker. "And because it's only active once it's been visited, the JavaScript remains invisible to website administrators."

"We've seen cases where an entire site has been reinstalled with the bugs taken out only for the malware to re-emerge within minutes. It could be that something is residing in the administrator's laptop, but it's certainly hard to stamp out."

The infection follows a trend that has seen poisoned websites overtake email as the prime weapon of choice for breaking into home computers.

"The biggest threat is the web. Email attachments have plummeted as a threat," says Graham Cluley, senior technology consultant at Sophos.

Every day 6,000 new websites are infected with malware, 83 per cent of which are legitimate pages infected by hackers, according to Sophos's Security Threat Report for 2008. "It's the fault of the people who own the websites. They haven't secured their site. The problem is that the owners might not be technical," claims Cluley.

Free music service launches with DRM

Music-lovers will get a chance to try their music before they buy under a new music service launched by Last.fm.

Described as the "world's biggest free music service", the online radio station has signed deals with four major record labels: Universal, Sony BMG, Warner and EMI. It will offer complete access to the companies' back catalogues, which include many of the world's biggest-selling artists.

The site also claims to have signed up more than 150,000 independent labels and artists. But the service is no MP3 free-for-all for users, and the inclusion of

digital rights management (DRM) means that the record companies' assets are protected. Listeners will be able to play any track via a streaming service up to three times. After that, subscribers will be pointed towards iTunes, Amazon and 7 Digital to buy the song.

Critics say this makes the site a marketing tool for the record companies because the service will be funded by a proportion of the resulting sales and advertising revenue, but Last.fm says it plans to make the terms more generous.

"At the moment it's just three opportunities, and the record labels aren't going to stretch on that," a

Last.fm spokesperson said. "Last.fm are pushing for longer, maybe something time-based, but that might be something for the future. It doesn't look likely to change in the short term."



▲ Listeners to Last.fm will be able to listen to Coldplay for free

A new spin on phone books

Commuters craving a good book or news fix could soon enjoy a whole library of information on their mobile phone, according to a company that's launching a handset with a flexible fold-out screen.

The 5in display of Polymer Vision's Readius phone folds out from the main body of the handset. This, the company claims, provides enough screen space for eBooks or RSS news updates to be read easily.

The manufacturer claims that the handset's battery will support even avid readers with one charge, powering the screen for 30 hours. And, because the display uses electronic paper technology, it can be read in most light conditions.

► Great expectations: The Readius promises to bring eBooks to the mobile phone



"People are demanding instant access to personal content and information" said Karl McGoldrick, CEO of Polymer Vision. "They do not want to be concerned with small screens, not being able to read in sunlight, a dead battery or a device being too bulky to carry in their pocket."

Sadly, there's no supplementary screen that would make using the handset more practical as a traditional phone. However, POP3 and IMAP email should be more readable than on fiddly phone screens and the SD card slot can take high-capacity memory cards able to handle plenty of books and audio files.

How popular the HSDPA-enabled phone proves when it is released this summer will depend on the price, which Polymer Vision is currently keeping under wraps.



Troubled waters for ISPs in P2P row

The music industry has trained its guns on the UK's internet service providers (ISPs). It is targeting the tech companies in a battle against the piracy that takes place on peer-to-peer networks.

Buoyed by support from politicians, the British Phonographic Industry and its international counterparts are piling on the pressure, with the intention of forcing through government legislation that would force ISPs to disconnect broadband supplies to anyone using P2P software to download copyrighted music and films illegally.

In its annual report on digital music, the International Federation of the Phonographic Industry (IFPI) took the chance to call on the government to force ISPs to clamp down on file-sharers.

"Piracy has been able to flourish in an unregulated environment, with unauthorised content circulating abundantly on networks," said Jean-Francois Cecillon, the president of EMI Music International Labels. "Governments now need to wake up, properly protect the creative work of artists and address copyright infringement."

"ISPs have a unique role to play in the fight against intellectual property theft and can help provide valuable solutions to piracy, while at the same time spurring the digital future."

It may sound like scare-mongering, but the government is certainly taking the situation seriously. Lord Triesman, the minister responsible for intellectual property, recently said he expected ISPs to enter into the spirit of copyright protection voluntarily, but warned: "We will legislate to make that happen if the industry doesn't act fast."

The idea is not without precedent. Across the Channel, French president Nicolas Sarkozy has already reached agreement with ISPs and is hell-bent on stopping the internet becoming a place where "high-tech Wild West outlaws can pillage works with abandon or, worse, trade in them in total impunity".

ISPs, however, are worried about both the feasibility and cost of trying to act as gamekeepers on their networks, especially given how many downloaders encrypt BitTorrent streams.

"We can't make a blanket ban on P2P because people use it for all sorts of things. The BBC's iPlayer, for example, uses P2P," said Neil Armstrong, marketing director for UK ISP PlusNet. "It's not the job of ISPs to police the web, and frankly it would be impossible both technically and financially. To do the monitoring in real-time is just not viable."

"There are millions of packets going over the networks and to monitor them all would be a huge burden. Forty per cent of people using P2P encrypt their traffic, so we have no idea whether the content of that traffic is copyrighted or not."

Legal experts say that only by changing the law to assume guilt when people use encryption could the situation be alleviated. However, such a change in the law is unlikely to happen. What is certain is that the freebie gravy train is entering a new era – one that might make it more difficult to download content freely.



NEWS ANALYSIS

Can the music industry keep pace with the digital revolution?

Digital music has a short but turbulent history, and has resembled a prize fight between consumers and the recording industry since music fans started using the web to swap files.

After a series of high-profile, shock-tactic lawsuits against perpetrators, the industry is finally looking for ways to generate money from their wares over the internet. With a little imagination it might just get there, but it faces another free-for-all, this time with the big fish of the technology world.

Until now, executives have buried their heads in the sand, trying without success to plug the gaps through which their revenues from CD and DVD sales were slipping. Straightforward P2P swapping gave way to BitTorrent. Sales, the IFPI says, have slumped because no-one is paying for music.

Aware that they are fighting a losing battle, the industry's marketing men are now coming up with creative new ways to generate an income from their wares. Last.fm is one such example (see page 14). Tracks from all the major industry players can be downloaded and played up to three times. The tracks are protected with DRM and, once you've had your three strikes, you're out.

But at least the service is a new idea, and works for both the consumer (who can listen to music before parting with cash), and the musicians, who have a new marketing tool for getting their tunes to as wide an audience as possible. Once they've heard the tracks, the thinking goes, they might shell out to keep listening.

As we went to press, confusion surrounded the future of another new concept, Qtrax. This service plans to allow consumers to download tracks from all four big music publishers for free. Qtrax's star shone brightly when it announced that it would give users unlimited access to millions of tunes, which they could actually move to portable players. The only catch was having to endure adverts, but that seemed a small price to pay for unlimited access to millions of tracks.

Quite how the service would work, where the adverts would reside and what DRM restrictions would be in place were still up in the air at the time of writing. We will report on the details next month, when we have been through the small print and tested the scheme.

That's if it gets off the ground. Just one day after the groundbreaking concept was announced, the service was in trouble when record company execs said that, er, actually they hadn't reached any final agreement with Qtrax to release their tunes. Watch this space but, if successful, it sounds like a real revolution.

The idea of ad-supported music is a bizarre concept. Music, apart from when played on commercial radio, has largely been advertising-free. We have always accepted adverts every 15 minutes on television, but the idea of having Brahms or Razorlight interrupted by Tampax or toothpaste commercials doesn't sit well.

According to music industry experts, the money-spinning scheme is just one option among many, and is typical of an environment in which the consumer is, for once, more important than the product.

At the moment, no-one really knows who's going to come out on top of this battle for your hearts and minds, or at least ears and eyes. "All these new models that are coming out are interesting, but it's not about the music – it's about owning the relationship with the consumer," said Richard Bron of Blueprint Digital. "It's not about what EMI or Universal or Sony have – it's about who gets the music or television into your living room."

"That's why Sky are investing so much money to keep customers on side at the moment, but it could be Apple or Dixons or Microsoft."

The music industry, which has lost control of its intellectual property rights once, will need to negotiate carefully to make sure it doesn't lose out again – this time to whoever wins the battle to deliver your digital ditties.



Stewart Mitchell

Correspondent

IN BRIEF

OPEN UNIVERSITY GOES FORENSIC

The Open University is attempting to raise the standard of computer forensics in the UK by offering a new postgraduate course to teach IT crime-fighting techniques.

"IT-related crimes are more prolific, and businesses have to guard themselves against a multitude of issues such as fraud, illegal downloads, theft of data and online bullying," said Peter Sommer, an IT security expert who wrote material for the course.

SOUND WAVES KEEP COMPUTERS COOL

Scientists have discovered that sound waves may hold the key to cooling ever-faster PCs. Ari Gletzer and his team at Georgia University used sound waves to cool PC components. By placing a sound source opposite an existing liquid cooling system, they were able to dislodge the bubbles using just a small amount of energy. Gletzer claimed the effect increased the efficiency of the liquid coolant by almost 50 per cent.

HARD DISKS TO GET LARGER AND LIGHTER

Hard disk manufacturer Western Digital has announced that its Caviar line of internal hard disks will now use 320GB platters. The first Caviar hard disk to use these larger platters is a 320GB hard disk, which is available now. The rest of Western Digital's internal hard disks will move over to the new technology in the coming year.

Higher-density platters can be used in two ways: to create low-capacity hard disks that are lighter and less bulky, or to make high-capacity hard disks with even more storage space.

NETGEAR RECALLS POWERLINE ADAPTORS

Netgear has recalled 82,000 XE103 Powerline Ethernet adaptors sold in Europe, over concerns that the device could overheat, possibly causing a fire. The company said it had received no reports of this happening, and that the recall is a precaution.



HD DVD future in doubt as Warner Bros picks Blu-ray

Shoppers who have been waiting for a ceasefire in the high-definition DVD format war before buying a drive are likely to choose Blu-ray over HD DVD, if the latest decision by Warner Bros is anything to go by.

The future of HD DVD is in serious doubt with the news that Warner Bros has pulled support for the format, leading to a sharp decline in sales of HD DVD discs. The top 10 titles sold in the first half of January all used the Blu-ray format.

HD DVD's leading advocate, Toshiba, has slashed its hardware prices in a bid to persuade consumers to buy players. With consumers worried that there would be little content to watch on HD DVD, hardware sales have apparently slumped despite the price cut.

According to research from NPD Group, sales for the two formats were evenly poised before Warner Bros's announcement. However, a week later HD DVD player sales accounted for just seven per cent of the market.

Amid rumours of a \$500 million (around £250 million) payment from Blu-ray's controllers (mainly Sony) to Warner Bros, resentment is running high among users who have spent money on equipment and films that may soon become obsolete. Disgruntled film



▲ HD DVD hardware sales have taken a hit following Warner Bros's decision to pull support for the format

buff Tudor Cenceno set up a petition calling for Warner to reconsider, and 25,000 people have already signed up.

"We wanted to show Warner Bros that the consumer has not 'clearly' chosen Blu-ray," he told *Shopper*. "Warner Bros switched to Blu-ray exclusively claiming it's best for the consumer, but how about all the consumers that bought HD DVD movies and hardware already? Warner just screwed them all."

Unless the HD DVD camp signs major exclusive deals soon, Blu-ray may have won the battle of the blockbuster.

Manufacturers cut TV cord on gadgets

The scourge of tangled cables could be banished as manufacturers scramble to use wireless technology between audio-visual players, including media centre PCs, and flat-screen displays.

Major television manufacturers have announced new displays that

include wireless HDMI links for transferring video from media devices to the screen. LG, for example, has said that its LG71 televisions will include a built-in wireless receiver and a separate transmitter to send signals via 802.11n.

Consumers who already have HDMI-equipped screens must rely on add-on hardware to bridge the gap. Belkin's Flywire (see *First Looks* on page 21) includes a transmitter that plugs into most AV sources and sends its signal to a small receiver that connects to the screen.

CRAZE

What the web is really for with Stewart Mitchell

Where in the world?

Sean Ryan has just finished a backpacking tour around Asia and wants to make a lush reportage-style slideshow from the thousands of digital images he snapped to show off to his friends and post on the web.

"The problem," he said, "is that all these Thai temples look the same once you've seen more than two or three. I wasn't sure if the pictures were from Bangkok or Chiang Mai, and couldn't remember whether I'd taken a picture of the girlfriend in front of a market stall in Vietnam or Laos." The 'time taken' metadata of an image file gives some idea of where a picture was snapped, but it's useless to anyone but the photographer.

However, a new trend in snapshot management is emerging that could put Ryan's pictures on the map. Geotagging lets you add longitude and latitude location details to metatags, so they can be linked instantly with mapping sites such

as Google Earth or with online photo stores such as Flickr and SmugMug.

Until recently the tagging has required you to find the coordinates and input them directly into the tag spaces online. But with the arrival of cheap, portable GPS receivers in cameras and other small gadgets, it's becoming less fiddly to add GPS data. For example, the GPS Photo Finder from ATP Electronics (<http://photofinder.atpinc.com>) uses satellite signals to pinpoint where you are. When you copy photos to your computer, the location data is embedded in the JPEG files.

Experts predict this will make it possible to take a tour of the world from your laptop, and see exactly where friends are when those holiday snap links drop into your inbox.

"Now my mum follows where I am on a map, and can see what I'm up to," said Ryan. Scary. Remember you can switch geotagging privacy levels if necessary.





First looks

Every month we bring you sneak previews of the latest kit from www.computershopper.co.uk

D-Link D-Life networking

D-Link has launched a new range of network products, dubbed D-Life. In combination with a dedicated website, the new products are designed to be easy to install, use and even share with other users.

Once a user has registered a D-Life web account, they can register their new products by simply typing in the unique D-Life serial number that's provided on each product. As soon as the product is connected to the network, it's automatically configured.

To simplify things further, every D-Life product has built-in HomePlug powerline networking, so there's no need to mess around with extra cables or wireless, and one cable provides power and networking.

Once your products are configured, the D-Life website becomes a portal to your home's networking devices, enabling you to view, control and manage them. It's also got some sophisticated sharing technology.

For example, one of the first products to be released will be an internet webcam. Not only can you view its footage live through the D-Life website, but you can also share its feed with other D-Life users, so they can see what's going on as well.

D-Link has also announced several other products in this range. There'll be a telephone, which will let you make free calls to other D-Life users or, by buying credits as with Skype, call regular telephones. A voicemail box will connect to your regular landline so that people can

leave messages. Through the D-Life website you'll be able to listen to any messages, or share them with other users. Finally, a digital photo frame will allow you to send pictures to it from the website. If you decide to share it with other users, they'll have the ability to send pictures directly to your home as well.

D-Life works really well, but it could be some time before we see products, as there's no UK release date.



Sony's dancing MP3 player

We recently got our first chance to play with Sony's Rolly, an egg-shaped MP3 player that dances to your music. It's small enough to fit in the palm of your hand and has lights around its body that flash in time to the music. Two little flaps at either end of its body open and close to help add extra flair to its movements. The built-in speakers are surprisingly good, considering Rolly's small size.

It has 2GB of flash memory onboard, or you can stream music to it using Bluetooth from your mobile phone or PC. Its rechargeable lithium-ion battery should last for around four hours of music and dancing.

You can program Rolly with motion data to complement your favourite tracks, and a simple choreography program is provided. These dances can also be shared with other Rolly owners. If you can't find a dance for the track you're listening to, then Rolly will just make it up as it goes along.

It looks like a lot of fun, but we can't help but think that the gimmick will wear off pretty quickly. A UK release date hasn't been announced yet, but the product is available in Japan.



Flywire wireless TV

If you've got a TV that you're happy with but want to get rid of all of those unsightly cables, Belkin's Flywire will be of interest to you. It converts any HDMI-equipped TV into a wireless one.

The bundled transmitter, pictured, sits beside your AV sources, such as a games console, DVD player, Freeview or Sky box. It has video inputs on the back, into which you plug your kit using standard cables. It has two HDMI and two component inputs for high-definition video, and S-video, composite and SCART for standard-definition video. The video is then transmitted wirelessly to the receiver plugged into the TV.

The receiver is very compact and can be attached to the wall behind your TV. It has a single HDMI output that plugs into your TV using a regular HDMI cable. All

the video sources plugged into the transmitter are converted to digital as they're transmitted.

Belkin claims it will work at ranges of up to 50 feet and will handle uncompressed 1080p video without a problem. Results were impressive, with video from a Blu-ray player transmitted flawlessly. It should be available by August, but it will be expensive at around £300.

